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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/841,593	04/25/2001	Akio Koro	206585US3X	4757
22850	7590	12/11/2003		EXAMINER
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			SORKIN, DAVID L	
			ART UNIT	PAPER NUMBER
			1723	

DATE MAILED: 12/11/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>
	09/841,593	KORO ET AL.
	<b>Examiner</b>	<b>Art Unit</b>
	David L. Sorkin	1723

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 03 September 2003.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) 4-10 and 14-20 is/are allowed.
- 6) Claim(s) 1-3 and 11-13 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 03 September 2003 is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. §§ 119 and 120

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) All b) Some \* c) None of:  
1. Certified copies of the priority documents have been received.  
2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 13) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) The translation of the foreign language provisional application has been received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                             | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### **35 USC § 112**

1. Applicant has explained in remarks filed 03 September 2003, that as used in the instant application, the term "rotor" does not refer to the entire rotating structures depicted in Fig. 1, but only the selected portion of each rotating structure indicated by "L" in Fig. 1 and depicted in Figs. 2A and 2B. Thusly, the "edges" of the "longitudinal ends" do not refer to the endpoints of the entire rotating structures depicted in Fig. 1, but refer to boundaries between the selected and non-selected portions. Applicant has added reference signs 4A and 4B to further clarify what the "edges" are. The examiner accepts this somewhat contorted terminology and considers that one of ordinary skill in the art would understand the scope of the claims and, given the now-accepted interpretation of the terms "rotor", "edge" and "end", that there was support in the specification as originally filed for what is now being claimed. Therefor, the previous rejection under section 112, first paragraph is hereby withdrawn.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 3, 11 and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by Lohmann (US 1,406,666). Regarding claim 1, Lohmann ('666) discloses a mixing rotor (a selected portion of the rotating structure depicted in Figs. 11 and 12; the

selected portion being for example, the portion from a cross-section corresponding to the left edge of Fig. 12 to a cross-section through the right end point of blade C) for use in a batch mixer including a mixing chamber (see Fig. 1), the mixing rotor comprising a plurality of mixing blades (A,B,C,D or a subset thereof), each mixing blade having a tip for defining a tip clearance against an inner surface of the mixing chamber where the mixing rotor is to be rotatably placed to impart shearing forces to a material to be mixed in the tip clearance (see page 2, lines 21-35), wherein the plurality of mixing blades include a pair of longer blades (the pair A,C) twisted in such a direction as to cause the material to flow toward a longitudinal middle side of the mixing rotor, and the pair of longer blades include a first longer blade (C) which is linear in a development of the mixing rotor developed into a plane about its longitudinal axis and extends from an edge of one longitudinal end of the mixing rotor toward the longitudinal middle side thereof by or beyond the longitudinal middle thereof, and a second longer blade (A) which is substantially nonlinear in the development and extends from an edge of the other end longitudinal end of the mixing rotor toward the longitudinal middle side thereof beyond the longitudinal middle thereof and whose helix angle gradually increases toward the other longitudinal end (see Fig. 12). Regarding claim 11, Lohmann ('666) discloses a chamber including a mixing chamber (12) and a mixing "rotor" (a selected portion of the rotating structure depicted in Figs. 11 and 12; the selected portion being for example, the portion from a cross-section corresponding to the left edge of Fig. 12 to a cross-section through the right end point of blade C) rotatably placed in the mixing chamber (see Fig. 1), the mixer comprising a plurality of mixing blades (A,B,C,D), each mixing

blade having a tip for defining a tip clearance against an inner surface of a mixing chamber to impart shearing forces to a material to be mixed in the tip clearance (see page 2, lines 21-35), wherein the plurality of mixing blades include a pair of longer blades (the pair A,C) twisted in such a direction as to cause the material to flow toward a longitudinal middle side of the mixing rotor, and the pair of longer blades include a first longer blade (C) which is linear in a development of the mixing rotor developed into a plane about its longitudinal axis and extends from and edge of one longitudinal end of the mixing rotor toward the longitudinal middle side thereof by or beyond the longitudinal middle thereof, and a second longer blade (A, respectively) which is substantially nonlinear in the development and extends from and edge of the other longitudinal end of the mixing rotor toward the longitudinal middle side thereof and beyond the longitudinal middle thereof and whose helix angle gradually increases toward the other longitudinal end (see Fig. 12). Regarding claims 3 and 13, the end of the first longer blade at the longitudinal middle side of the mixing rotor is located at a position spaced apart from the second longer blade by 120 degrees or larger in the circumferential direction of the mixing rotor (see Fig. 12). Note that the reference specifically indicates that the drawing is a scale drawing on page 1, lines 70-74).

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 2 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lohmann ('666) in view of Nortey (WO 99/49960). Lohmann ('666), discussed above regarding claims 1 and 11, depicts the linear blade helical angles of approximately 36 degrees in Fig. 12, which is 1 degree outside the claimed range of 15-35 degrees. Nortey ('960) explains on page 40, lines 11-13 that blade angles of mixing rotors may be adjusted to suit particular properties of the material being mixed. Therefore it is considered that it would have been obvious to one of ordinary skill in the art to have adjusted the angle of the blades to suit particular material properties as taught by Nortey ('960) on page 40 lines 11-13.

***Allowable Subject Matter***

6. Claims 4-10 and 14-20 remain allowed.

***Response to Arguments***

7. All previous grounds for rejection have been withdrawn. The interpretation of terminology which applicant argued has been accepted. However, under the interpretation which applicant desires, new grounds for rejection under sections 102 and 103 are necessitated.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David L. Sorkin whose telephone number is 703-308-1121. The examiner can normally be reached on 9:00 -5:30 Mon.-Fri..

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda L. Walker can be reached on 703-308-0457. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.



David Sorkin